UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98057-3356

In the matter of the petition of **THE BOEING COMPANY** for exemption from §§ 25.785(j), 25.857(e), and 25.1447(c)(1) of Title 14, Code of Federal Regulations	**Regulatory Docket No. FAA-2007-0323**

DENIAL OF EXEMPTION

By letter dated March 8, 2010, Jordan B. Zundell, Lead Project Administrator, Production and Retrofit Projects, The Boeing Company, PO Box 3707, Seattle, Washington, 98124-2207, petitioned for an amendment to Exemption No. 9779A. The proposed amended exemption, if granted, would allow the installation of a locking feature on the access doors between the supernumerary seating area and the Class E cargo compartment on Boeing Model 777F airplanes. It would also allow in-flight access from the supernumerary seating area into the Class E cargo compartment during flight for the purpose of attending to cargo types requiring care or inspection, or both (e.g., live animals and/or hazardous materials).

The petitioner requests relief from the following regulations:

Section 25.857(e), at Amendment 25-93, requires, in pertinent part, that when a Class E cargo compartment is installed on the airplane, the airplane is used for carriage of cargo only.

Related regulations:

Section 121.583(a) contains, in pertinent part, a listing of categories of persons who may be carried aboard an airplane in part 121 service without complying with all the requirements of part 121 pertaining to carriage of passengers.

The petitioner supports its request with the following information:
This section quotes the relevant information from the petitioner's request, with editorial changes for consistency and clarity. The complete petition is available at the Department of Transportation's Federal Docket Management System, on the Internet at http://regulations.gov, in Docket No. FAA-2007-0323.

Revision of the Exemption [9779A] is requested to include changes affecting supernumerary access to the Class E cargo compartment during flight. Exemption 9779A, as written, does not address the effects of lockable Rigid Cargo Barrier Access Doors or the conditions required to permit access to the cargo compartment when such devices are installed on the airplane.

Existing Exemption 9779A allows, in part, access to the main deck cargo compartment during flight. Up to eleven (11) supernumeraries can be inside the compartment provided live animals needing their care/attention are being carried. If only regular cargo is being carried, the exemption limits the number to three (3) [supernumeraries]. Any person entering the compartment must take a portable oxygen bottle (with full face mask) with them.

When Boeing originally petitioned the FAA, an optional airplane configuration (currently limited to one customer) was not described, that includes a lock feature added to the rigid cargo barrier (RCB) access doors that separate the supernumerary area and the Class E cargo compartment. The customer required the lockable doors in order to preclude a potentially harmful stowaway inside the cargo compartment from gaining access to the flightdeck. It is an airplane security issue with this airline. As such, the sliding access doors can only be either locked or unlocked from the forward side of the RCB. The supernumerary seating area is immediately forward of the RCB, and the flightdeck is forward of that.

This request for an amendment to Exemption 9779A is not regulation specific. When the Exemption was developed prior to certification of the first 777F airplane, a lock on both RCB doors and access to the Class E cargo compartment by supernumerary personnel was not envisioned. Consequently, further review, consideration, design solutions, and limitations are required to ensure safety of the supernumerary personnel.

Supporting Information:

The addition of a lock to the cargo access doors serves to address contractual obligations between the airline operator and its pilots' union. The lock is added to address pilot concerns regarding the potential for stowaways to access the supernumerary compartment and flightdeck from the cargo compartment when no lock is in place.

The intended operations would be for the access doors to be locked at all times unless the cargo compartment is occupied. There is past precedence where locks have been added to cargo access doors (MD-10, MD-11, 767, 747, and 777F). In general, the primary difference in these designs is that access to the cargo areas is prohibited during taxi, take-off, flight and landing. Flight Manual instructions and placards installed in those configurations prohibit access to the Class E cargo compartments during those phases of flight. One significant difference in this statement is in regard to an MD-11 configuration that was developed and certified for UPS, which included a lock on the RCB access door and also allowed access to the cargo compartment.

A safety concern has been identified concerning supernumerary entrapment. Personnel could be inadvertently entrapped in the Class E cargo compartment if a crewmember or other supernumerary were to lock the door because they did not know the compartment was occupied, or, if they locked the door out of habit.

Discussion regarding risk of entrapment

A functional hazard assessment has been completed to assess and categorize specific hazard scenarios associated with the locking RCB access doors.

Justification for amendment to exemption

To provide an acceptable level of safety that addresses the concern of entrapping an individual in the Class E cargo compartment, additional precautions will be implemented.

Flightcrew and supernumerary communication protocols will be improved. The supernumeraries will be required to announce their intent to enter the Class E cargo compartment. To ensure all personnel on the airplane are aware that personnel will be in the Class E cargo compartment, the flightcrew will be notified prior to entry. In the case where multiple supernumeraries are on the airplane, a "buddy" system may be employed where each supernumerary can be paired with a buddy and will be responsible to be aware of their buddy's whereabouts. Prior to entry into the cargo compartment, if there is one or more supernumeraries remaining in the supernumerary compartment, at least one of the remaining supernumeraries will be designated to ensure the access doors remain unlocked. Lastly, the flightcrew must be advised when all personnel have exited the Class E cargo compartment.

Flightcrew and supernumerary communications between the Class E cargo compartment and flightdeck will also be improved through technology.

1. Two new Cargo Assist push button switches will be installed aft of and within six feet (2 to 3 frames) of the Rigid Cargo Barrier Doors. The cargo assist push button switches will be located within the left and right sidewall liners

2. The cargo assist alerting system will provide an aural annunciation as well as a visual indication on the flightdeck in order to raise awareness of the flightcrew regarding the need for assistance in the cargo compartment.

Public interest

The demand for shipment of goods by air cargo continues to grow worldwide. The 777F freighter airplane is being built to support this increasing demand in a manner that is very economical to air cargo operators. The 777F configuration provides main deck cabin seating for supernumeraries (who must meet the criteria defined in §§ 121.583(a)(1) through (a)(7)). Having necessary supernumeraries immediately available for cargo handling and management reduces operational costs by not having supernumeraries take separate commercial flights to the cargo destination, which also reduces the turn-around

time for the cargo carrier. Granting access to the cargo compartment eliminates certain limitations for the operators when transporting hazardous materials or live animals. This serves the overall public interest by virtue of the net cost savings for cargo shipment, resulting in lower costs for goods and material transported as air cargo, as ultimately reflected in lower consumer costs for goods transported as air cargo.

The addition of a locking feature on the RCB doors safeguards the flightcrew and supernumerary areas against potential intrusion. Though this feature is not intended for, or qualified as a security item, the introduction of such a feature could serve the overall public interest by virtue of an enhanced security benefit.

***Federal Register* publication**

A summary of the petition was published in the *Federal Register* on March 30, 2010 (75 FR 15771). The FAA did not receive any comments.

The FAA's analysis

The original version of this exemption allowed access into the Class E cargo compartment during flight for three types of operation. In this petition to amend the exemption, the petitioner requested that the FAA continue to grant access to the Class E cargo compartment in flight, and, in addition, allow the installation of a lock on both of the access doors to the cargo compartment. The stated reason for requesting permission to install the locks is to address contractual obligations between an airline operator and their pilots' union. The lock is intended to address the union's concern regarding the potential for stowaways to access the supernumerary compartment from the cargo compartment and then the flightdeck. While the FAA recognizes the importance of contractual obligations between the airline operator and its pilots' union, our focus is on the safety aspect of the proposal. Per our request, Boeing made several attempts to have the operator engage in discussions to explore alternatives to the locking feature. We were told that the operator preferred to have Boeing discuss the issue with us. Recognizing the safety concern of the proposed design we explored alternative design features with Boeing but were unsuccessful in identifying an acceptable alternative.

In analyzing this request we weighed the harmful stowaway issue against the possibility of accidentally locking an occupant in the Class E cargo compartment. We have carefully reviewed the position of the petitioner and determined that the potential negative ramifications on supernumeraries locked in the cargo compartment far outweigh the potential gain in security. Below is a discussion on how we arrived at this decision.

The issue of a secure door to protect the flightdeck on cargo airplanes was discussed in the FAA's final rule, request for comment, *Security Considerations in the Design of the Flightdeck on Transport Category Airplanes*, Amendment No. 25-106, Docket FAA-2001-11032 (67 FR 2118, January 15, 2002). We received several comments during the public comment period and after considerable discussion determined that if an operator has an approved Transportation Security Administration (TSA) security program a locking door is not needed. At that time, we stated that improvements in security are necessary for all-cargo operations that

In the case of the MD-11, however, we note that the exemption itself (No. 6753, Partial Grant of Exemption, issued April 21, 1998) does not authorize a lock and specifically prohibits access into the Class E cargo compartment during all phases of flight. In 2001 the FAA approved a design change for this one MD-11 that permitted access into the Class E cargo compartment, but this design change was approved in error because it conflicts with the limitation included in Exemption No. 6753. We will re-examine this approval and determine if corrective action is appropriate. For airplanes where in-flight access into the Class E cargo compartment is prohibited, we will continue to allow a locking feature.

Second, we evaluated what the potential safety impact of the proposed locking feature would be. Under the current regulations, an exemption is needed for a cargo airplane to have additional occupants (supernumeraries) other than crew and, separately, for those individuals to have access to the Class E cargo compartment. Allowing supernumeraries in-flight access to Class E cargo compartments does not provide a level of safety equal to that provided when access is not allowed, i.e., the level of safety is reduced. We have mitigated the increased risk by requiring additional equipment, alerts, and procedures, which provide an acceptable level of safety for persons in the categories listed in § 121.583(a).

The addition of a lock on each of the cargo access doors has the potential of trapping one or more supernumeraries in the cargo compartment if the doors were to become locked for any reason. The doors are not capable of being unlocked from the cargo compartment side of the door. Additionally, because there are no cargo loading instructions which would establish clear crossover paths in the cargo compartment, it is possible that a supernumerary entering the compartment from one door could not exit through the other door, even if it were unlocked.

As means to mitigate the increased risk to supernumeraries in the cargo compartment during flight, the petitioner offered the following:

1. Having the supernumeraries who would enter the cargo compartment announce their intent to the flightcrew and other supernumeraries and installing a placard to remind supernumeraries to do so.
2. Having the supernumerary entering the cargo compartment designate another supernumerary (if present) to ensure the door locks remain unlocked.
3. Installing placards to advise that the doors should remain unlocked if persons are inside the cargo compartment.
4. Installing placards on how to lock and unlock the doors.
5. Installing a "cargo assist" system that includes an activation switch on the cargo compartment side near each access door, which would sound an aural annunciation and light an indicator in the flightdeck.

The FAA notes that there is no device or system on the airplane to determine whether or not a supernumerary is in the cargo compartment or through which door he or she entered the compartment. Also, relying on a supernumerary to remember another supernumerary saying they were going into the cargo compartment, which may have been made an hour or more ago, is not an infallible system. Finally, since the intent of the locks on the doors is to keep the doors locked as much as possible, the tendency for the supernumeraries would be to lock each door.

Therefore, we do not agree that all risk of inadvertently locking the door would be mitigated by the proposed placard and procedures. As for the cargo assist system, we agree that this should provide a clear indication to the flightcrew. However, such indication may come at a time when the flightcrew is extremely busy addressing major flight issues. This would significantly delay the crew's ability to effect action to unlock the appropriate access door and release the trapped supernumerary.

Therefore, the FAA's assessment is that the negligible increase in security does not offset the increased risk for supernumeraries if they are allowed to enter the cargo compartment in flight when locks are installed on the access doors.

The FAA's decision

In consideration of the foregoing, I find that a grant of exemption is not in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. §§ 40113 and 44701, delegated to me by the Administrator, I deny the petition of The Boeing Company to amend Exemption No. 9779A to allow the installation of the proposed locking feature on the access doors between the supernumerary seating area and the Class E cargo compartment on Boeing Model 777F airplanes if access into the Class E cargo compartment is allowed during flight.

All conditions and provisions of Exemption Nos. 9779 and 9779A remain in effect.

Issued in Renton, Washington, on JUN 30 2010

Todd Dixon
Acting Manager, Transport Airplane Directorate
Aircraft Certification Service